

Exploring knowledge, attitudes, and practices toward older adults with hypertension in primary care

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Purpose: High blood pressure increases the risk of cardiovascular and kidney diseases. The purpose of this study was to explore a baseline of hypertension knowledge, attitudes, and practices among older adults with hypertension at a sub-district Health Promoting Hospital in the Pathum Thani province of Thailand.

Patients and methods: A cross-sectional study was conducted at the outpatient clinic of the sub-district Health Promoting Hospital, one of the primary care sectors, between January and March 2015, and a total of 144 cases were recruited. All clinical parameters were collected and a structured questionnaire was used. Data were analyzed by means of descriptive statistics and chi-square tests.

Results: Most of the participants (74.3%) were females, and their mean age was 66.1 years. Two-thirds (66.7%) were married, unemployed/retired (67.4%), and had completed elementary education (79.2%). The screenings showed that their mean blood pressure was 136.4 (± 14.4)/79.2 (± 10.1) mmHg, the group's mean body mass index was 24.9 kg/m² (± 3.6 kg/m²), and their mean waist circumference was 88.6 cm (± 7.1 cm) for males and 85.7 cm (± 6.8 cm) for females. In addition, their mean score of hypertension knowledge was high, and most of the participants had a neutral attitude toward hypertension; their practices in terms of dietary and exercise habits for controlling blood pressure were low in nature.

Conclusion: This study indicated that increasing patients' practices would be useful for promoting their healthy behaviors to achieve blood pressure control.

Keywords: aging, blood pressure, community, health behavior, screening

Introduction

Hypertension is a major global health problem. The Global Burden of Disease Study has indicated that premature deaths, disability, stroke, and heart disease are related to increased blood pressure levels.¹⁻³ Higher incidence rates of hypertension are attributed to population growth, aging, and behavioral risk factors such as unhealthy food intake, physical inactivity, obesity, smoking, excessive drinking of alcohol, and chronic stress.⁴ Uncontrolled blood pressure is associated with an increased risk of heart disease, stroke, and kidney disease.^{5,6}

Recently, the prevalence of hypertension has been increasing, and the number of newly diagnosed cases of hypertension has risen in all regions of Thailand.^{3,6} Underlying demographic characteristics that have an influence on high blood pressure and vulnerability to various health factors include age, sex, body mass index (BMI), waist circumferences, and a family history of hypertension.³ Furthermore, lifestyle habits

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such as unhealthy food intake, physical inactivity, cigarette smoking, alcohol use, chronic stress, and insufficient sleep also increase the risk of hypertension.^{7–10}

Both pharmacotherapy and lifestyle modifications are recommended treatments for hypertension. However, prevention of high blood pressure and concomitant cardiovascular disease, changes in medication adherence and lifestyle therapies that require a deeper understanding of knowledge-based awareness, and patients' behavioral adaptation are also recommended.^{11–13} Hence, it is necessary to explore the knowledge, attitudes, and behaviors or practices of hypertensive patients who are at an increased risk of failing to reach their targeted blood pressure control levels, particularly those involved in community-based care. It was anticipated that such a study might help further explain individuals' knowledge, attitudes, and lifestyles. For this reason, the community-based survey conducted in this study was aimed at assessing the hypertension knowledge, attitudes, and practices among hypertensive patients seeking health care services at Buengkhamphroi Health Promoting Hospital (HPH), Pathum Thani Province, Thailand.

Patients and methods

Study area and participants

A cross-sectional study was conducted at one of the 12 primary care settings, namely Buengkhamphroi Health Promoting Hospital (HPH), located in Buengkhamphroi sub-district, Lamlukka district, Pathum Thani Province. This is a semi-urban area close to the Bangkok Metropolitan Administration. The sample size of the study was 144 participants. The study participants were 55 years old or older, and both males and females participated in the study. All had been diagnosed with hypertension and were currently undergoing treatment and receiving regular follow-ups at the hypertension clinic. Individuals who were suffering from serious chronic illnesses or who were not willing to participate in the study were excluded. The survey was carried out between January and March 2015.

Instruments

The measurement tools used in this study consisted of digital blood pressure measurement devices, a stadiometer with a weight scale, and a fabric tape measure to measure waist circumferences. A five-part questionnaire was also employed to collect the following data: 1) general characteristic, 2) knowledge about hypertension, 3) attitudes toward hypertension, 4) practice of hypertension, and 5) past history

and other health risk factors. Data collection were undertaken in three steps. First, preparations began with the validation of the questionnaire by three public health experts regarding what to be measured and what not to be measured; second, a coefficient of those was completed; and third, a coefficient of ~ 0.5 was valid at 0.73, by the Items-Objective Congruence Index. Furthermore, a pilot study was also conducted to test the reliability of the questionnaire, which refers to the accuracy and consistency of information obtained in a study; the 10-question knowledge survey among old patients with hypertension had good reliability (Kuder–Richardson-20 coefficient was 0.70). Also, the Cronbach's coefficient alpha for the attitudes toward hypertension questionnaire was 0.74, which was considered acceptable. Clinical parameters were defined in the subsequent step. The research team introduced themselves to the prospective participants, explained the aims of the study, and obtained written consent from the participants who met the inclusion criteria and were willing to participate in the study. The participants underwent a complete physical examination, including measurements of their body weight and height. BMI was calculated as weight/height (kg/m^2), and waist circumference was also measured.^{14,15} This study defined hypertension based on a diagnosis of hypertension that required a physician's treatment. Blood pressure was taken using a digital blood pressure measurement device after a 10-minute rest in a sitting position and following standard procedures. Two readings of mean measures were used in the analysis; however, if a high systolic blood pressure (SBP) measurement was greater than 5 mmHg, a third reading was taken. Following this procedure, the lowest of the three readings was taken as the blood pressure measurement. Using JNC 7, classification of blood pressure for adults⁵, pre-hypertension was diagnosed when SBP was 120–139 mmHg and diastolic blood pressure (DBP) was 80–89 mmHg. Hypertension stage 1 was diagnosed when SBP was 140–159 mmHg and DBP was 90–99 mmHg, and hypertension stage 2 was diagnosed when SBP was ≥ 160 mmHg and DBP was ≥ 100 mmHg. In addition, the lowest and highest groups from those categories were observed.¹⁶ The last step of the data collection process was an approximately 30-minute individual interview with each participant based on a semi-structured questionnaire. It is worth noting that all data were collected by well-trained village health volunteers and trained nurses from the outpatient clinic of the selected health promoting hospital.

The total possible score for knowledge of hypertension was 10 points, the total possible score for attitude toward

hypertension was 30 points, and the total possible score for practice was 60 points. The mean standard deviation (SD) of knowledge of hypertension was used to categorize the scores as “high”, “moderate”, or “low”. A high level of hypertension knowledge was defined as a score greater than or equal to mean + SD, a moderate level of knowledge was defined as a score between mean \pm SD, and a low level of knowledge was defined as a score less than or equal to mean – SD.

Regarding attitudes toward hypertension, the mean and SD were also used to categorize the participants’ scores as positive, neutral, or negative. A positive attitude was defined as a score greater than or equal to mean + SD. A neutral attitude was defined as a score between mean \pm SD. A negative attitude was defined as a score less than or equal to mean – SD.

Practice was categorized into four subgroups: healthy diets, unhealthy diets, physical activity and exercise, and stress-relieving activities. Healthy diets were defined as patients’ decision (weekly) consumption of vegetables, high-fiber foods, and few sweet fruits; drinking lots of water (at least 1 L/day); and cutting down on sodium intake. On the other hand, unhealthy diets were defined as frequent (weekly) consumption of high-salt, high-fat, and high-energy foods. In addition, the study participants were considered physically active when they engaged in any form of exercise for 30 minutes at a time at least three times per week. Finally, stress-relieving activities were defined as the availability of leisure time and the sleep pattern followed. In this study, if the practice was done on most days of the week or 5–7 days, a score of 3 points was given; a score of 2 points if performed for 3–4 days/week; a score of 1 point if performed only once or twice per week; and a score of 0 point was given if self-care activities were not performed at all. The mean values and SD of practice were categorized as follows: high, moderate, and low. A high level of practice was defined as a score greater than or equal to mean + SD, a moderate level of practice was defined as a score between mean \pm SD, and a low level was defined as a score less than or equal to mean – SD, respectively.

Data analyses

Data analyses were conducted using SPSS statistical package version 16 (SPSS Inc., Chicago, IL, USA). Descriptive statistics, including frequency distribution, percentage, mean, and SD, were used to describe the following demographic characteristics of the participants: chronic conditions and risk factors, clinical assessment, clinical parameters, knowledge, attitudes, and practices related to hypertension.

Ethical considerations

This study was approved by the Ethics Review Committee for Research Involving Human Research Subjects, Health Sciences Group of Chulalongkorn University (COA No.178/2557). Prior to participating in the study, the study objectives and data collection procedures were fully explained to the participants who then signed a written informed consent form to indicate their willingness to participate in the study.

Results

Table 1 describes the demographic characteristics of the 144 study participants. Approximately one-thirds (74.3%) were females. Their mean age was 66.1 \pm 9.0 years. Furthermore, approximately two-thirds (66.7%) were married, 79.2% had completed elementary education, and 67.6% were not employed (housewives/retirees). Most of the participants were non-smokers and non-alcoholics. Also more than 50% reported that their family history of hypertension was unknown, and most of them (83.3%) had been diagnosed with hypertension and had been taking antihypertensive drugs for more than 5 years. Moreover, nearly 30% of the participants had other health issues, such as diabetes mellitus, blurred vision, and hearing loss. With regard to clinical assessments, it was found that their mean SBP was 136.4 \pm 14.4 mmHg (43.1%) and DBP was 79.2 \pm 10.1 mmHg (53.5%). In addition, their mean BMI was 24.9 \pm 3.6 kg/m² (43.8%).

Table 1 Demographic characteristics of study participants

Variables	N (n= 144)	%
Demographic characteristics		
Age 61–70 years (66.1 \pm 9.0): age range 55–80 years	58	40.3
Female	107	74.3
Married	96	66.7
Elementary education	114	79.2
Housewives/retirees	106	67.6
Chronic illnesses and health risk factors		
Non-smokers	108	75.0
Non-alcoholics	109	75.7
Family history of hypertension: unknown	82	56.9
Duration of hypertension \geq 5 years (9.0 \pm 3.4)	120	83.3
Duration of taking medication \geq 5 years (9.0 \pm 3.4)	118	81.9
Hypertension with other problems	75	52.1
Clinical parameters		
Blood pressure: taking \geq 1 antihypertensive drug(s)		
SBP 120–139 mmHg (136.4 \pm 14.4)	62	43.1
DBP <80 mmHg (79.2 \pm 10.1)	77	53.5
Body mass index >25 kg/m ² (24.9 \pm 3.6)	63	43.8
Waist circumferences (men: n=37, females: n=107)		
>90 cm for males (88.6 \pm 7.1)	17	13.9
>80 cm for females (85.7 \pm 6.8)	77	53.9

Abbreviations: SBP, systolic blood pressure; DBP, diastolic blood pressure.

Finally, regarding waist circumferences, it was found that 13.9% of male participants had a waist circumference >90 cm (13.9%), with a mean waist circumference of 88.6 ± 7.1 cm, and more than half of female participants (53.9%) had a waist circumference >80 cm, with a mean of 85.7 ± 6.8 cm.

Of the 144 participants, 62.5% had a high score of knowledge of hypertension, and most of them (77.8%) had a neutral attitude toward hypertension. However, it is worth noting that the number of participants who had either positive or negative attitudes toward hypertension were equal. Moreover, the overall score regarding participants' practice of hypertension was at a moderate level (70.1%). The findings of healthy diets, unhealthy diets, physical activity and adherence to adherence, and stress-relieving activities are presented in Table 2.

Discussion

According to the findings, the majority of the participants were females, had hypertension, had been taking medication for 5 or more years, had been able to control their blood pressure to less than 140/90 mmHg, and had a BMI of 24.9 ± 3.6 kg/m². It is worth noting that the proportions of overweight participants (BMI >25 kg/m²) and the participants whose waist circumferences were greater than the criteria (>90 cm for males and >80 cm for females) were similar to those observed.⁶ Similarly, a previous study found that the average BMI and waist circumferences in both sexes, after socioeconomic factors, diet habit, physical activity, and social context had been taken into consideration, had changed over the past decade. One reason which can be explained that as more hypertensive patients live in urban areas, they might have adopted the unhealthy lifestyles of urbanites – for example, modern dietary habits such as consuming Thai food – which differ from the past.^{3,6,17} In addition, the study findings shed light on other physiological risk factors that were likely related to disease burden, such as being overweight, having a waist circumference greater than 80 cm in females, and being menopausal, all of which change progressively with age.^{3,6,17,18} The clinical parameters for males require further observation.

Table 2 Findings regarding knowledge, attitude, and practice toward hypertension

Variables	N (n= 144)	%
Score of knowledge about hypertension: high	90	62.5
Score of attitude toward hypertension: neutral	112	77.8
Score of overall practice: moderate	101	70.1
Four subgroups of practices related to hypertension		
Healthy diets: 3–4 days/week	72	50.0
Unhealthy diets: 1–2 days/week	124	86.1
Physical activity and exercise: 1–2 times/week	131	91.0
Stress-relieving activities: 1–2 times/week	126	87.5

The findings of this study showed a high mean score of knowledge on hypertension and a neutral attitude toward hypertension among the study participants. This could be explained as a response to Thailand's Healthy Lifestyle Strategic Plan (2010–2020), one of the campaigns of the Ministry of Public Health that aims to promote healthy lifestyles among Thai citizens, and particularly for those with chronic diseases, including hypertension. These national projects have focused on practices for preventing non-communicable diseases by means of behavioral adaptations such as maintaining a balanced diet, engaging in adequate levels of physical exercise, and adopting suitable emotional management techniques, as national health priorities in the primary health care sectors.¹⁹ Having access to this information via the mass media and through health care providers allows patients to gain knowledge and promote attitude changes regarding disease.²⁰ However, in this study, the participants' mean scores of overall practice were at a moderate level, particularly with regard to healthy diets and physical activity, which was clearly inadequate.^{16,21} Surprisingly, we found that most of the participants reported altering their lifestyle to avoid an unhealthy diet only once or twice weekly (86.1%), and they managed their stress by engaging in relaxing activities only 1–2 days per week (87.5%). This might have been due to individual reasons, the influence of mass media, and social context, as in the Thai culture, individuals prefer to spend time engaged in family activities such as preparing food and cooking by themselves, which may have led to the consumption of unhealthy foods, despite the emphasis of the national health promotion campaign on increased consumption of fruit and vegetables via various channels.^{19,22}

The limitation of this study is patients with uncontrolled hypertension or blood pressure greater than 160/100 mmHg did not address according to universal health coverage and the referral system of the Ministry of Public Health Policy, the service potential of primary health care unit addresses only patients who are able to control their blood pressure.^{16,23} Therefore, further research should be considered to include other groups. Another limitation of this study is selection bias that might have occurred due to the sample of older adults with hypertension who participated in the study. Furthermore, the sample size of this study was not large. With these limitations in mind, it is advisable to add more clinics of other health-promoting hospitals to research settings for future studies. If possible, data collection could be done using more instruments to triangulate the study findings. It is also worth noting that, in the present study, other factors such as patients' beliefs, alternative treatments and use of herbal supplements, and influence of various media outlets might

have affected the patients' idea that illness and lifestyle habits cannot be controlled. It is also possible that different findings may have been obtained among a more homogeneous patient sample with a specific chronic illness, such as diabetes mellitus and kidney disease. Finally, it is possible that the data collected in this study could have been biased due to the participants' moods, staff members' intention, and the duration of interviews. Each of these may have played some role in the data collection procedures used throughout the study.

Conclusion

The findings of this study revealed that participants' scores of knowledge on hypertension ranged from moderate to high, and their mean attitude score toward hypertension was neutral. In addition, their efforts to control their blood pressure in terms of healthy diets and physical activity were inadequate. Therefore, this study has highlighted the need to increase patients' practice, which would be useful in controlling blood pressure, allowing them to reduce health risk factors among older adults with hypertension. Further research is needed to promote individual perform on their own within the cultural and social contexts of the community that could help result in positive health outcomes of hypertensive patients.

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Disclosure

The authors report no conflicts of interest in this work.

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